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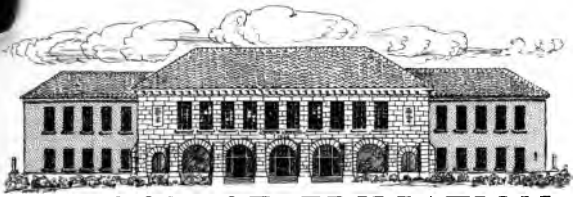

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MISS WEST'S

CLASS IN GEOGRAPHY

BY

FRANCES C. SPARHAWK

BOSTON
LEE AND SHEPARD, PUBLISHERS
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MISS WEST'S CLASS IN GEOGRAPHY.

PREFACE.

IT is not because kindergartens amuse the children, keep them out of mischief, teach them to use their hands, and, to some extent, their brains, that they are chiefly valuable. These things have a use, of course; but the real service of the kindergartens is that they are a concession from the old habit of regarding the child's mind as a thing to be built up according to the laws of pedagogy, that they are the expression of the scientific method. In this method the attitude of teacher and of pupil toward each other entirely changes; one is no longer the Procrustes to whose measurement all over whom he rules must submit, and the other the victim of a tyranny destructive of mental growth or scientific progress. We know that from the beginning of time there have been great educators in the world, and that men coming after them have made use of

the hints dropped by them and treasured by their disciples. But there must be many single illustrations before a general principle can be deduced, and we have come now to the announcement of those deductions which have been made so slowly. No doubt, the scientific method in general has helped us here, as all things must which bring out the fact that every thing is controlled by laws of its own, and not by laws of our making. If we are discoverers in regard to the wonders of the earth, we are certainly such, and not creators, in the cosmos of a human soul.

Agassiz who wanted to found a school for the training of scientific men, died with the wish of his heart just reaching out toward its fulfilment. But he may really have helped to found a school far wider than any which he dreamed of. For we are only beginning to trace the influence of his method of giving his pupils the objects themselves to study from, instead of abstract principles to be illustrated by these objects, of his method of showing that each pupil was for himself to draw from individuality those general laws which would lead him on

to wider ranges, and that, however much he might attain, he would never grow beyond the revelations that the individual might make to him if he had power to read them.

Instead of objects in natural history, take human beings, and we have a clear idea of what the educators of to-day propose to themselves as their method of work. They are no longer going to stumble along, noses perpetually in some "dry-as-dust" volume, and dragging with them reluctant and footsore followers who understand neither where they are being dragged nor why. Instead of this, "a little child shall lead them." They are fellow-pupils with the children, students of human nature in its age of growth; and, thus, having for themselves a task more difficult than any that they set the children, they come to have a sympathetic patience with these. They come, too, to appreciate those differences of character which are index-fingers pointing out the children's future paths.

It is for this reason that this little book is offered to them as a result of the study of child-nature. It is hoped that it will be found

of use as supplementary reading for classes in geography, and, in cases of quite young children, as preparatory to the definitions and terse statements of text-books, which are to the children mere "sound," — if not "fury," — and "signifying nothing."

At the outset, two things may be said concerning this book. It is not intended to do away with that verbal explanation of things which alone can give vivacity to a recitation, and which with any book must still be necessary, because it meets those special cases that every teacher has and that with every teacher vary somewhat. And, then, the different situations of the towns in which the book is studied will suggest variations in regard to positions of hills, rivers, etc. But it is believed that the general statements will be found safe starting-points of fact and of interest for the children.

The other thing to be said is, that this book is not intended to do away with work, and substitute play in its stead; though it is meant to do away with aimless and weary wandering, and substitute for that steady footsteps to a visible goal. Nothing is truer than a remark

made by the artist and essayist, Philip Gilbert Hamerton, that to trifle with a study without getting a mastery of any part of it, is a mental injury. We have learned a good deal during the last hundred years, but we have not learned any way by which good results may be obtained without labor. And to teach the children to believe in such a possibility would be more disastrous to them than all the injuries of all the old methods combined. But when we consider how much more interest we ourselves take in news of people whom we know, or know about, than of strangers, it will not seem unnatural that the children, taking up a study which they have fancied quite strange, should be interested from the outset when they discover that already they know, in a certain sense, a good deal about it practically, and that, instead of being located nobody knows where, on a red map or a blue one, or on mere black and white, this geography that they thought a book is all over the town they live in, and reaches out everywhere with it as a centre. The reflected importance of being situated in a centre is not lost upon children, any more

than upon their elders. They will not forget that the little river in their native town is, in obeying certain laws, like all other rivers in the world, and that they, therefore, knowing these laws, can predict some things about all rivers, everywhere, like their sources in springs, or lakes, their flow from a higher level to a lower, the verdure along the banks, the means of transit, etc. And, so, the mighty Amazon will have a certain reality to them, and the majestic Mississippi will be more than a black, wriggling line in a book. They can never be so immured in the city that the rain on the roofs may not explain watersheds to them, nor so far from the sea that the thought of this highway of the nations will not prepare them for further explorations. In a way inexplicable to them geography becomes a part of their homes and lives. Their observation of things about them grows keener; and into these wider explorations they are prepared to carry that sense of familiarity mixed with novelty which is the zest of travel, and, equally, of study.

FRANCES C. SPARHAWK,

NEWTON CENTRE, MASS.,

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MISS WEST'S CLASS IN GEOGRAPHY.

I.

A NEW DEPARTURE.

THERE was an expectancy in the atmosphere of the school one morning, a consciousness that something unusual was coming, and, from the half-suppressed smiles on the little faces, evidently a belief that this something was of a pleasant nature. For, to the charm of novelty was added the assurance that Miss West's new departures were usually very pleasant. Nobody in the school had studied geography; and now there was to be a lesson, or rather a recitation, in it, and all were to take part. It would come directly after recess, if the children were very good so that the other recitations might be hurried a little. The teacher had public opinion upon her side that morning, as she generally had, and every thing went well. At

last recess was over, and the little ones were again seated. Miss West, looking around upon them, found it unnecessary to say, "Attention!"—and being wise enough to dispense with drill-words whenever this was possible, she began by saying,—

"One of you asked me why I should tell you that I was going to have a recitation in geography when none of you knew any thing about the study. That was a sensible question, and I promised to answer it at the proper time. I said 'recitation' because, though you think you do not yet know any thing about geography, you really do know a little; and I shall prove it to you. Johnny, what is 'geography'?"

Johnny Smart answered that he thought it was a lot of funny-shaped, colored things they called maps, in a book where the leaves had dots and black lines all over them, and queer-looking things that went *so*. And, going to the board, he made a fair drawing of mountains as they are represented on maps.

"Has anybody else any thing to add?" asked Miss West. A little hand went up.

"I don't think that's all," said Carrie Blunt. "There's a great, thick book my sister Nell has, with such lots of—I mean ever so much—

reading in it, and pictures of funny hills with smoke coming out of the top; and then, in another place, great, big waves, with such a funny-looking thing, just like the funnel of our stove, running along the top of the water, and that looks just as if it was made out of water too, — only, I know it couldn't be, — and, oh, such lots of other pictures!" In her eagerness, Carrie forgot to be elegant this time; and Miss West made no comment, not wanting to divert attention. "She calls it some kind of a geography," persisted Carrie.

"Anybody else?" asked the teacher.

Ned Wilson volunteered that it was a good thing to know about if you wanted to go to a place. Agnes Bright said that it told something about meridians, only, she didn't know what meridians were. Walter Knox asserted that it had something to do with making ships sail the right way; and several other vague statements were added to these. Miss West stood looking from one to another of the little ones with a smile that said she did not blame them, even if they were wrong, and made them sure that if it were so she would set them right.

When all the answers had been given, she

went to the board, and wrote something there distinctly. Then, standing so that all the school might see the board, she took the pointer, and asked, "What is that?"

"An apple," responded a chorus of voices.

She opened her desk, and took out a fair, large fruit, almost golden in color, and streaked with red where the summer sunshine had warmed it. She held it beside the writing on the board, and asked, "What is this?"

"An apple," repeated the chorus.

"And this?" — her pointer again at the board.

Again the children answered, "An apple."

"What! This an apple, and that, too?" returned the teacher. "Are they alike?"

"Lots of difference," cried Ned Hansom. "One's chalk, and the other's — real nice."

"Is that what it is made of?" smiled Miss West, and the children laughed. Then she went on gravely, "One is made by chalk-marks on wood, as Ned says, and the other grows. Yet you are right, — each is 'an apple.' Now, how can that be?"

The silence of earnest thought fell upon the band. They knew that they must find out this puzzle for themselves, — Miss West would not

tell them. But, then, if they tried very hard, she would help them to guess it. Each wanted to be foremost in the race that was to win that goal, and each felt that he had an equal start and no favoritism. At last Johnny Smart's hand went up.

"The chalk thing isn't an apple, but it means that," he said.

"You have come so near the truth, Johnny, that I must call your answer right," said Miss West. "Yet there is another word, that, if you had used it instead of 'means,' would have made your answer perfect. You want to say, 'it stands for.' Now, what *one* word means 'stands for'?"

Slowly Lily White questioned, "Is it 'represents'?"

"Yes," said Miss West, "the very word."

"I knew it," added the girl, "because yesterday my papa was telling me what a representative was. He said it was a man that stood in a place for ever so many other people, and did just what they would have done if they had been there."

"For instance," said Miss West, "both this fruit, and the writing that represents it, make you say, 'apple.' Let us say '*re-presents.*'"

And she wrote it on the board. "Now, to present a thing, is to show it, to put it before a person, just as I present this apple before you. And you remember what I told you '*re*' meant, as in *re-turn?*"

"*To turn again,*" answered several voices.

"And *re-sume?*"

"*To take up again,* as to resume our lessons," answered Carrie.

"Now," said Miss West, "what does *re-present* mean?"

"*To present again,*" declared all the school.

"And," the teacher went on to say, "could I present a thing again if it had never been presented to you the first time?"

"No, indeed!" cried Walter Knox.

"Right, Walter. Now, when I point to the board, and you see the word 'apple,' how many of you think how an apple looks — that is, how many of you have a picture of an apple in your thoughts?" Every hand went up. "But if you had never seen an apple, this could not represent one to you. How could I give you an idea of one?"

"You might paint an apple that would look just like a real one," suggested Mary Summers.

"It wouldn't smell," said Johnny Smart, "you

couldn't make it smell, and it wouldn't taste. There are lots of things it wouldn't do. It wouldn't be round. It might look so, but it wouldn't be bulgy, you know."

"You mean," said Miss West, "that, if you did not know a real apple, a picture would not tell you just what it is; but if you did know one, a word or a picture would re-present it to your mind."

"It would make your mouth water," cried Walter Knox.

"Then, you must know what a thing is beforehand, that is, a thing must be presented to you before it can be re-presented. Now, these maps and books that you have been speaking of re-present geography; and you have not had it presented to you by name yet, though, as I told you before, you do know something about it."

Then she gave the signal for rising; and the school with eager interest filed out of the door, and grouped themselves about a great elm that stood a few rods away.

II.

THE HORIZON.

"FRANK," said Miss West, handing the pointer to the youngest boy in the class, "please take this, hold it straight out from you in this way, and we will all play that it was long enough to reach the whole distance out to where you see the sky come down to meet the earth. If it were really as long as that, it would make a line on the ground all around there; wouldn't it?" The school assented.

"And now," as she took the pointer again, "we will all imagine, that is, make believe, that Frank, as he turned round, drew a line as plain as this little line I am making by the roadside. What is that line called that Frank has made?"

"A circle," said several voices.

"And what is that place called where the sky and the earth meet?"

"The horizon," answered Carrie Blunt.

"Yes, the horizon. Now, do the earth and sky really meet?"

"No," "no," came the answers.

"Are you sure?"

"I've been up to that church you see on that tip-top hill," said Fred White, "and the sky is just as high up as it is right here."

"And could you see any thing beyond the church?"

"Lots of things, — trees, and fields, and the river; and, oh, every thing!"

"Then, is everybody sure that there is something beyond that line on the horizon that we saw Frank drawing?"

Everybody was sure.

"Yet, since we cannot see it, and some of us have never seen it, we will not talk about that at present, only, by and by we will name it. Now we are going to talk about something that we all know, and can see as we are standing here, about what is within this space that has been marked out. How many of you are sure that you know about this? Now, as everybody assented, this is a part of geography, for geography is about the earth, the whole of it; and since you know about this

part of the earth, you know a little about geography, as I told you."

"That's so," echoed Agnes Bright, under her breath.

"There is one rule I want you all to learn by heart," pursued Miss West; "by and by you will see what it means. Repeat after me, 'The whole of any thing has a general likeness to a part.' Next, what do we find within this circle that we know about?"

"Grass," suggested Fred White.

"Yes; what else?"

"Ground," hazarded Johnny Sweet.

"Right: ground, the earth, that is. Do you suppose the same kind of things grow in this space that grow outside the horizon?"

"I do." "And so do I." "And I," answered the children.

"What things?"

"Trees, corn, grass, potatoes, flowers," called different voices.

"Water," added Frank, with his eyes on the river in the distance.

"Yes; although water doesn't grow. And, as to trees, would it make any difference if you saw an elm, or a maple, or an oak, or a pine, wouldn't you call each one a tree, just the

same? Wouldn't you call a russet or a greening or a Baldwin, an apple just the same? And is not grass, grass, whether it is tall or short? And are not lilies, and roses, and poppies, and peonies, all flowers? So that when I say, 'tree,' and 'apple,' and 'grass,' and 'flower,' it will present to you a picture something like these things, though you don't know of what kind they are. Now, what I meant by that rule that I gave you, that the whole was something like a part of a thing, was that the whole earth that you have *not* seen is something like this part of it in the circle Frank made that you *have* seen. You would know a tree anywhere, wouldn't you?"

"Yes, indeed!" cried Mary Summers.

"And grass, and flowers, and hills, and rivers?"

"Oh, yes, indeed!" they answered.

"Now, it takes a good deal of time to say always, 'the part we know,' and 'the part we don't know.' Let us name them. Our own town, Leslie, is in this space; and more than that, because we are on high ground, and can see so far. But, for convenience, let us call it all within this circle, Leslie. And what lies about Leslie, what country?"

"Massachusetts," cried Johnny Smart.

"Right," answered Miss West, who for the purpose would have accepted any answer, from the name of the county to the United States. "Now, once more, what things can we find in Leslie?"

"Trees, houses, barns, hens and chickens and roosters, vegetables, corn, flowers, hills, roads, railroads, factories, sidewalks, animals," answered the children.

"And the Hollow," added Frank, who, when asked to explain, answered, "that it was a place right down in the middle, after you go down one hill, and before you go up the other."

"It's just like that," said Carrie Blunt, pointing to a little valley plainly seen in the distance.

"And there's the river," added another. So they went on naming carriages, wagons, shops, and other things, until in a pause Miss West said,

"You have not given the most important of all. Who is going to tell us that?"

At last Fred White cried, "People."

And then they all laughed to think that they should have forgotten to count in themselves.

"Now," said Miss West, "if we were in this

larger space, that we are calling Massachusetts, the space outside ours, what kind of things do you suppose we should find there?"

"The same," called Johnny Smart.

"Only not exactly alike," added Lily White.

"How, different?" asked Miss West.

"Why, for one thing, we shouldn't know the people."

"That's very good, Lily; it shows just what I want all of you to remember," she added to the class. "The things are the same, just as an elm and an oak are both trees, but have some different qualities about them. When you know the people, and the trees, and the horses, and the hills, and the rivers, and the other things in Leslie, you know what they mean all over the world; but they are different kinds of people, and of trees, and all that. So that, you see, studying geography will be a little like having some strange boys and girls come to study with you and play with you. You know what boys and girls are, but you are not acquainted with these special ones."

"No," cried Johnny Smart; "but they're pretty much like all the rest, I guess; only some are larger than others, and some have more fun in them."

"Here is a slip for each one," said Miss West, "and on it is one of those things that you know about. And when we recite again, in three days, I shall ask each of you to tell me how many different kinds of that same thing are in our own Leslie. For example, one of you will have trees, and that one is to tell me, if he can, about every tree that grows in this country, but he is not to name one that he can't tell us something about; remember that, tell where it grows, and how it looks, and how it is like other trees, and how different from them. You may look into any book, and ask anybody except me. But each one of you must have something to tell us."

III.

TREES.

THE third day nobody was willing to be absent; even Carrie Blunt, who had a headache, came to school without complaint. The little ones all felt that something very interesting would happen that morning.

The opening exercises, and as many of the recitations as Miss West called, went off more smoothly than usual, which is saying a good deal. At last came the geography. The class included the whole school.

"To whom did I give the cards with the word 'trees' on them?" asked Miss West. Three hands went up. It had been a surprise to the pupils at first, to find that several of them had the same subject. But it had served a double purpose, by stimulating each child's desire to have something to say, and also by keeping the subject in general divisions about which they all fancied at least that they knew

something. For, where is the child who is not sure that he can tell all about things so simple as trees? Therefore three eager little faces looked out from behind the three up-raised hands; and Agnes Bright, in answer to Miss West's smile and nod, said,

"Maples, oaks, chestnuts, apple and pear and peach trees, pines, elms, plum." She paused a moment; and Miss West said,

"I think that everybody will have a chance to speak sometime during the recitation, yet some of you may have to wait until next time. If you do, it will give you the advantage of listening, and learning how to speak better when your time comes."

A wave of satisfaction swept over the school; there were advantages in both speech and silence, then every one must have something good. How much there is in the way things are put. "First of all," continued Miss West, "I shall see what the tree-students, Agnes Bright, Johnny Smart, and Walter Knox, have to say; and when a question that none of them can answer comes up, I shall refer it to you. Walter, can you think of any more trees not named?"

"Cherry, sycamore, walnut," answered the boy.

"That does very well," said Miss West. "Now, what is a general name for cherry, pear, apple, peach, plum, and other trees that have things to eat grow upon them?"

"Fruit-trees."

"Right, Agnes. And we will call them fruit-trees, to save the time of naming them all over, just as we called, — but I will not say."

"The circle inside of the horizon," cried a shrill treble.

The teacher smiled.

"Ah, Frank! you remember it," she said; "you drew it. And now, what kind of trees are elms and maples and sycamores, and even walnut and chestnut trees?"

Nobody answered.

"Do we like them, especially in a hot day?" the speaker went on.

Lily White hazarded the assertion that we did.

"Why?"

"Because it's shady under them," cried Johnny Smart.

"Then, what kind of trees do we call them?"

"Oh! I know, — shade-trees," said Fred White.

"Right," answered Miss West. "Now, are shade-trees all of the same size, Agnes?"

"Some are a great deal bigger than others," returned the child.

"Do you mean that elms are larger than maples, for instance? or that some elms are larger than other elms, and some maples than other maples?"

After a moment's thought, Johnny Smart said, "Both."

"Yes, both. That is to say, some trees are better placed than others, have better soil, more sunshine, more water for their roots, or they may have grown from the seeds of larger elms, or maples. But, if you knew a large elm, or a large maple, could you recognize a small one as belonging to the same kind of tree? I am asking any one."

"I could," said Walter Knox. "And I," came from several little people.

"Why?"

"Because they have the same kind of trunk and leaves, and the branches grow sort of alike," answered Ned Hansom.

"Very good, Ned. And in the same way you would find certain points in which all shade-trees are alike, and certain other points

in which all fruit-trees are. Again, as I told you the other day, we find that all trees, of no matter what kind, have certain points in which they are alike. Can you tell me what they are, Walter?"

"Trunks, branches, leaves," said Walter.

"Yes, that is right. Any thing else?"

"I can't think of any thing."

"Can you, Agnes? or you, Johnny?"

But, getting no information from either, Miss West turned to the class. But it could not be fruit, or nuts, or berries; and they, too, were puzzled. Miss West sent Willie Sullivan to bring in a leaf from any tree near the door. He came back with an oak-leaf, and she asked the class what this leaf had that belonged also to every leaf that they had ever seen or imagined.

"It isn't wavy edges," said Ned Wilson thoughtfully; "the maples look different."

"No, it is not wavy edges. All those special things will come in by and by under another study. It would only confuse you to have me speak of them now. But look carefully; can't you see?"

Little Frank Blake's eyes sparkled. He thrust up his hand, and then he drew it back

timidly. But Miss West had seen him. "Try, Frank," she said, with that smile which repaid the children for their greatest efforts.

"Is it the green?" asked the child.

"Yes, it is color," said Miss West emphatically. "Where were your eyes, children, that only one little fellow could see this?"

Lily White said that she supposed it was because he had more color in his eyes than the rest of them, which caused a general stare into Frank's black orbs, and rather disconcerted him.

"I should say that it was because he used them better," returned the teacher, looking very much amused for a moment. "Now, what is it that all trees have?"

"Trunks, branches, leaves, color," answered a chorus of voices.

"And do you believe that there are any trees in the country beyond our 'Leslie,' in the place that Johnny Smart called Massachusetts?"

"Lots of 'em," cried Carrie Blunt.

"And what do they have like these?"

Again the chorus.

"Do you believe that all over the world there are trees?"

"I do," answered several.

"No," said Fred White emphatically.

"Where do you think there are none?"

"In the ocean."

"Yes," said Mary Summers, "and in the desert, too."

"You are half right, and half wrong," said Miss West. "There are few trees in the desert. You all know that they would not grow in a great, dry sand-heap, and that is what a desert is. But even there you would see little patches of ground with springs of water, and around this water you would find trees growing. Now, as to the ocean. Great plants, perhaps larger than our trees, grow under it; but we will not take up that subject now. Shall we say that trees grow all over the earth, except in the ocean and in the desert?"

"No: they don't grow up round the north pole," said Lily White; "nothing grows there. Papa has a great book with pictures of the ice-fields in it. There's nothing but polar bears on those."

"Then, let us call those deserts, too," said Miss West. "We will say that trees grow everywhere except on the ocean, in the deserts, and the ice-fields; or we will say ice-deserts. Now, if you travelled all over the earth, how

many of you feel sure that you would know trees whenever you saw them?" Every hand went up. "But," continued Miss West, "you will not travel all over the earth, and yet it would be nice to know a little how the trees look in countries that we have never seen, and probably never shall go far enough away from home to see. Now, we have said that all trees have trunks and branches and leaves. But trunks may be large, or small; they may be straight, or crooked and knotted; they may be tall or short, rough or smooth, dark or light. In the same way, branches are different, and leaves are very different indeed: in some countries and places they are much larger and darker and handsomer than in others. Now, since we cannot travel to all those countries to see for ourselves, should you not like to know some of the reasons for trees being large or small, so that when you hear a country talked about, and know what part of the world it is in, you will have an idea at once how the trees look there? and when I say 'trees,' I mean fruit-trees and shade-trees, and the bushes and flowers, and even the grass, which altogether we call vegetation. How many of you would like to find out that?"

Not only did every hand give evidence of its owner's desire, but every little face also, and there were several whispered exclamations of satisfaction. Lily White cried, "Oh, how lovely!" and Johnny Smart whispered, "Won't it be jolly!" Then he looked at Miss West uneasily. But it seemed as if she had not heard, for she was too wise a woman to hear every thing.

IV.

VEGETATION.

"WHAT are we to study to-day?" asked Miss West.

"To tell what makes trees large or small, and such things," answered the children.

"Right. Let us look about us, and find two trees of the same kind. Here are two elms, they both seem to have their full growth. What can you say about them?"

"One is a great deal bigger than the other," cried Johnny Smart.

"Let us suppose," said Miss West, "that these two trees had started even. You see that one has gained on the other, one is larger and handsomer. This is as if you had started even with poor children who never had any chance to go to school, and had come out a great distance ahead of them. One of these trees has had a better chance than the other. What kind of chances can trees have? What

things that grow, and that you love, have the same nature that trees have?"

"Flowers?" said Agnes Bright.

"Yes," returned the teacher. "And what do flowers need in order to grow their very best?"

"Good soil," said one.

"Lots of water," suggested another.

"Any thing else?"

"Fresh air," said Mary Summers.

"You have not said the sunshine, the most important of all. What does the sunshine give us?"

"Light," cried Ned Hansom.

"Yes; and what else?"

When nobody could think, Willie Sullivan was sent to stand in the sunshine, and tell what besides light came from it. In a few minutes he came back, saying that he didn't know, only, it was awfully hot.

Then the children understood that it was heat; and they found that trees grew by heat, light, air, water, earth.

"And in some or all of these things, the larger tree is better off than the other one," said Miss West. "Now, if we learned that any other country had more heat and water, and a

richer soil than ours, what could we be sure of about it?"

"Big trees," cried Ned Hansom.

"Lots of them," added Walter Knox.

"That is," said the teacher, "the more heat and water, the larger the trees. And what besides trees grow in the same way?"

"Bushes, grass, and flowers," answered several voices. Then, looking at the two elms, they decided that the larger one, being nearer the river, had more water than the other.

"And how about soil?" asked Miss West, explaining to them by the illustration of the running away of the sand with the water, when it is poured over sand and stones, how alluvial soil is carried from high land to low by rains and by rivers, and how this richer earth is found at the foot of hills rather than on the top. As to heat, one tree was found to be in a warmer place on the southern slope of a hill. And she began to explain the reason of that situation being warmer by showing that the sun lies south of us. This she did by crossing two sticks on the ground in the direction of the four cardinal points. Then she made one of the children hold a pointer perpendicular to the zenith at the intersection of these.

Thus they saw that the sun was in the south. "Where we live," she added, "the sun is south of us all the year, farther south in winter than in summer, I cannot now explain why. Now, if in winter you came in from the cold, and stood with your face to a bright, open fire, which would be warmer, — your face, or your back?"

"Your nose," cried Will Hansom.

"Then, why is a southern slope warmer?"

"Because it faces the sun," answered the children.

"Right. And the nearer we get to having the sun directly over us, the warmer we are. And to us that means, that, the farther south we go for thousands of miles, the warmer it is. This is true until we get to a certain point, then the sun is directly over our heads; and after that, as we go on, it is north of us."

Then illustrating the effect on vegetation of the hot and moist air of a greenhouse, she went on to say,

"There is one of the largest rivers in the world that flows through a country directly under the sun. What two things are necessary to the growth of trees and flowers, that is, of vegetation?"

"Heat and water," said Lily White.

"And what kind of vegetation would you find there?"

"Great trees, and big flowers, and lots of them," said the class.

"The trees are so close together," said Miss West, "and the undergrowth that is, the bushes and flowers and grasses, so crowded together, that a person going along the river in a boat would sometimes have to go for miles before he could find space enough to land on."

"Are there any animals there?" asked Johnny Smart.

"Yes, indeed. Monkeys spring chattering from limb to limb of the trees; great serpents hang down from the boughs over the water; birds of bright plumage flit about everywhere; and in the night the howls of wild beasts can be heard in the forests. But no human beings lived in that wilderness when the travellers sailed up this river, the Amazon." Then she explained how it would be in heat like that without moisture, as in the Sahara.

"Just as mamma says our garden dries up in August," said Fred White.

"Only a million times worse," cried Johnny Smart.

"And," said Miss West, "there are places that have water enough, or snow enough, but very little heat. How do you suppose the trees grow there?"

"I don't know," said little Frank Blake, "but I guess they must be kind of scrimpy things."

V.

HEAT AND MOISTURE.

"WHAT two things did we say were necessary to vegetation?" said Miss West.

"Heat and moisture," answered Johnny Smart.

"Now, we know that the sun gives us heat, and that the moisture comes from springs and rivers, and from the ocean, which is all from the sun, too, because the sun draws up the moisture that falls in rain, and the rains feed these springs and rivers, and they feed the ocean. Now, for a long distance, it grows warmer as we go farther south, that is to say, vegetation depends on latitude." And then she explained that latitude meant breadth, and that in old times people called the distance from north to south breadth, because they thought that the earth, instead of being a globe, was flat, like the schoolroom floor, and longer from east to west than the other way.

Lily White drew on the floor a chalk-line from east to west, and Johnny Smart a shorter one from north to south, the lines intersecting at the middle point of each. Then Ned Hansom, by enclosing these in a parallelogram, showed what the shape of the earth was formerly thought to be, and the reason for the terms "latitude" and "longitude."

"But that isn't right now," said Fred White, "because the earth is round, like an orange."

"Spherical, you mean," said Miss West. "But is an orange perfectly spherical? Here is one on my desk now, that a little friend was kind enough to present to me;" and she held it up. "How many of you think that this is perfectly spherical?"

There was a silence. The children felt that it could not be perfectly so, because Miss West had implied it was not; but nobody could see the failure. At last, after it had been handed about for examination, Agnes Bright hazarded a question. "Isn't it banged in a little way at the ends?" she said. The children laughed, but they saw it; and they remembered that the earth was "banged in" a little, too, at the north and at the south.

"Now, as to vegetation," added the teacher,

"that depends upon latitude, but upon other things, too; because there are ways in which the land may slope, or the rivers may run, which amounts to the same thing as being a good many miles farther south; for latitude, so far as vegetation is concerned, means only plenty of heat and of water. Now, some places are as warm and as moist as others a good deal farther south of them. And here is a conundrum for you; What things are those that make a country both warm and cold?" After various guesses, Carrie Blunt asked if Miss West meant warm and cold at the same time. "That is good," said the teacher, smiling; "only, instead of 'at the same time,' please ask me if I mean in about the same place, that is, not many miles apart. Carrie, will you be kind enough to bring me my parasol? Thank you. Now, please open it, and hold it between you and the sun, as low on the side as you can. Lily, please stand between the parasol and the sun. Now, class, you see that Carrie is north of the parasol, and Lily south of it, but that they are so near one another that distance, or latitude, does not make any difference, yet that there is a difference. What makes it?"

"The parasol hides Carrie from the sun," said the class.

"Does that make her warmer, or cooler?" asked Miss West.

"Cooler than I am, I know," cried Lily.

"Now, in this latitude, the sun is always south of us: therefore, which side of us must the shelter from it be?" said the teacher.

"South of us," replied the class

"And so, on which side of the shelter must we be? On which side of the parasol is Carrie?"

"The north side," they all answered.

"Now, if the parasol were a hill, which side of it would be cooler?"

"The side away from the sun, the north side."

"And on which side should we find the largest trees, and grain, and fruit, and flowers?"

"On the south side."

"Supposing there were a great many hills stretching all along together," said Miss West, "in what direction must they run to have the north on one side of them, and the south on the other?" Then she placed four children in a line, with hands joined, and faces toward the south. "What is behind them?" she asked.

"The north," answered the class.

Then Mary Summers stretched out her left hand, and they decided that it pointed to where the sun rose that very morning, which was in the east, and that Frank Blake's right hand at the other end of the line pointed opposite, or toward the west.

"Supposing these children were mountains going east and west," the teacher said, "how would they divide a country, that is, what would be before them, and what behind?"

The children saw that it would be south and north. Then Miss West lengthened the range of mountains until it stretched across the room, and they found that it still ran from east to west. "Whether you have a longer or a shorter range of mountains, in which way does it run," she asked, "if it divide a country north and south?"

"East and west," answered the children.

"Yes. Mountains do not often run exactly east and west, though, or north and south, but nearly in one of those directions. Do you remember that last winter I had a screen made to put up against the north windows? Why did I not put it against the south?"

"Because the sun came in that way."

"Then, which side is warmer?"

"The south," they answered.

"And why did I put the screen against the north window?"

"To keep out the cold wind," answered Lily White, whose seat had been near that source of discomfort.

"Now, suppose that the schoolhouse were as big as the space we call Leslie," said Miss West, "and that the screen had been a range of mountains against the north side of it, what would this range have done?"

"Kept off the cold," cried Johnny Smart, with sparkling eyes.

"Do you mean all the cold?"

"I guess not," said Ned Wilson, remembering that this had not been the effect of the screen. Miss West nodded, and smiled.

"So, you see that mountains make one part of a country warmer, and another part colder. This is my conundrum. And now, if you wanted to live in a warm country, and heard of a range of mountains running east and west which side of this range would you take?"

"The south side," answered the class.

"Why?"

"Because we should get all the sunshine,

and the mountains would keep off the north wind."

"Right. Only there is one thing you must remember; if you ever travel so far south that you go past the middle of the earth, all that I have told you about the mountains here is true there, except that there the sun will be north of you, instead of south; so that it will be the north that is warm, and the south cold."

VI.

WATER-SHEDS.

"THERE is something else in our lesson besides the vegetation, and the hills," said Miss West. "What is it?"

"The river," suggested Van Carter.

"Yes; and how did it come there?"

The children looked at her in amazement; it seemed to them that the river had always been there. But they tried to think of something to say, because Miss West did not mind their being wrong so much as their not trying. At last, Johnny Smart said that perhaps the rains had run down there, and made the river.

"You may be nearer right than you think," she said. "What makes the rain run into it?"

After several guesses by the children, Lily White said that perhaps it was lower.

"Yes, lower than the rest of the country; as Johnny says, the river is down there. How

many of you have seen water run out of a spout in a shower? It runs like a brook."

"Only, it isn't so big," said Lily White.

"And it runs a great deal faster," said Ned Wilson.

"There is another point in which it differs from a brook. What is it?" asked Miss West.

No one could tell at first; but finally Agnes Bright cried,

"It's because it stops when the shower is over."

"Very good, indeed," said Miss West. "Why does it stop?"

"Because there is no more water on the roof," said Mary Summers.

"The sun comes out, and dries it off," added Johnny.

"Yes, and this goes up into the sky again," said Miss West.

"Water never runs up hill," remarked Charlie Gray sententiously, "unless it's in a force-pump (his father was a plumber); and the sun isn't a force-pump."

"No," she answered, "but the sun is something else; by and by we shall see what. The water that runs into a stream, runs down hill into it in the same way that it runs off a roof;

there is not so much difference as there seems to you; and the reason that it does not dry up so soon, is only because there is a great deal more water to run, and because, before that has all run away, more rain comes. The rain is so much like rain on a roof filling a spout, that the hills and the country which give the water to streams are called by a name that makes us think of a roof."

"O Miss West! what is it?" cried Frank Blake.

"It is called a water-shed, because it casts off or sheds the water down into the lowest part, just like a shed-roof into its gutter; and from this lowest part it runs off in a river, like the spout. We have been talking about mountains. Now, only think how the rains that fall on these mountains must run down; think what big, big sheds these mountains must be, and how long a time they can keep the rivers running. But sometimes in hot countries, — in what direction from us are hot countries?"

"South," answered the chorus.

"That is right. Sometimes rivers in the south that are filled by mountains where it does not rain for months at one part of the year, get perfectly dry, and all the trees and

flowers on their banks are parched, until the rains come back and cover again with water all these great water-sheds, the mountains. How many of you would like to know where water enough comes from to cover all these great mountains that fill all the great rivers?" Every little hand was raised. "A few minutes ago," added Miss West, "Charley Gray said that nothing could draw up water but a force-pump. Now, I was glad to hear him say that. I am always glad to have you bring up all your reasons and your questions; but I think we may be able to find out a better name, and one more easily understood. What comes up from boiling water?"

"Steam," they answered.

"What is steam?"

There was a moment's silence, and then Ned Wilson said that he guessed it was water so hot it had to run off. The children laughed; but Miss West said that she liked the answer very much, and that it was true too. "Now, where does it run?" she asked.

"It goes up into the air a little way, and then it all goes into nothing," said Johnny Smart.

"Are you sure of that?"

The class professed certainty, and Lily White added that they had all seen it do so.

"You are all mistaken," answered the teacher; "and when I explain to you about it, you will see that you cannot always believe even your eyes, and that things are not always just as they look. How many of you ever put a little sugar into a tumbler of water?"

They had all done it, and Frank Blake corrected that he had put in a good deal.

"Do you see it at first?"

They did see it at first in the bottom of the tumbler.

"And afterward?"

They all knew that after they had stirred the mixture a while, there was no more sugar to be seen.

"Has it gone out of the tumbler?" asked Miss West.

Johnny thought that could not be, because the water tasted sweet.

"Then, where has the sugar gone?"

"Oh! I know, — into the water," cried Mary Summers.

"Yes, into the water," answered the teacher; "and if you have put in a great deal of sugar, you can see it a little, can't you? — that is, it

makes the water thicker." They remembered that it did. "Now," pursued Miss West, "have none of you ever gone into a kitchen where the teakettle has been boiling hard for a long time, and felt and seen that the air was full of steam, just as the water in the tumbler was full of sugar? If you should put your hands into the steam nearer the kettle, what would happen?"

"They'd be burned," answered the children.

"Any thing else?"

"They'd get wet," added Walter Knox, speaking from experience.

"And if you held a plate against the steam, what would happen?"

"It would get all covered with little bits of drops, and then some big drops would roll off of it," said Johnny Smart, who seemed to be the only one who had experimented in that direction.

"And now," said Miss West, "don't you all see that water can be made to go up hill? for that water which rolls off the plate held above the nose of the teakettle came out of the water inside the kettle. What sent it up there?"

There was a silence. At last three hands went up, and three little voices cried,

"Coal!" "Fire!" "Heat!"

"Right, all of you; for it is the same thing, because you mean heat when you say 'coal' and 'fire.' Do you remember where all the heat comes from in the first place? I have told you about that."

"From the sun," they answered.

"Yes; and what great body of water does the sun shine upon day after day?"

Carrie Blunt thought that it was the ocean.

Miss West answered that she thought so too, and that all the water came from there in the first place.

VII.

SUN AND RAIN.

"IN our last lesson," said Miss West, "we were speaking about the steam from the teakettle, you remember, and about the sun from which all heat comes, and the ocean from which all water comes. Now, Johnny, do you remember whether it was a cold plate, or a hot one, that you held up against the teakettle?"

"I think it was cold," answered the boy.

"That is, you mean, that when the steam came against something cold it turned into water again. That is a good thing to remember. Heat turns water into steam, and cold turns steam back into water. It would take a long time to explain all the things that can be done through this law. Locomotives are run, and mills; and work which would take hundreds of men a long time to do, may be accomplished in a very little while by reason of this law.

"But, after all, nothing is so wonderful as that the sun, like a great fire, sends the water from the ocean away up to the tops of the mountains, — not in great waves that would drown us all, but in little particles so small we cannot see them until they come against something cold; and then we do see them, first in clouds, like the little particles on Johnny's plate, and then in rain, like the big drops that he told us ran down from it.

"It is colder high up in the air than it is close down by the earth, or the ocean, and it is coldest of all about the tops of high mountains. As the clouds come where it is colder and colder, they grow thicker and thicker, just like the steam on the plate, until they turn into water again, and get so heavy that they cannot stay up in the sky any longer, but come falling down in rain, or in snow, which is only rain frozen up in the clouds.

"The rain, or snow, falls on the mountains (these watersheds that we were talking about), and then the streams come down, and the hillsides are green with trees and grass. And between the hills, in the valleys, and at the foot of the hills, on the plains, the corn grows, and the fruits and flowers grow, and those helpful

and beautiful things, which, taken all together, we call, — what do we call them all together?"

"Vegetation," answered the class.

"Yes, vegetation; and what two things does vegetation need?"

"Heat and moisture," they said.

"Where does the heat come from?"

"The sun," answered the class.

"And the moisture, as I have just told you, comes from the rains," said Miss West. "A very cold wind, or perhaps some high mountains, will do with the clouds just as Johnny's plate did with the steam, — make them fall in drops of water."

"Perhaps the mountains want the water to fill up their rivers," said little Frank Blake.

The teacher agreed with him. "And, Johnny," she said, "how was it on the back of your plate, — the part away from the steam?"

Johnny did not think that it was much wet.

"That is the way it would be on the other side of mountains if the rains fell before the clouds went over," explained Miss West; "so that the country on the sides of the mountains next the ocean would get more rain than that on the other side; and, if the mountains were very high, all the moisture from that ocean

would be taken up on the side next it. When you boil water in a teakettle, what difference does it make whether you have a little fire or a large one under it?"

"It boils faster with a big one," said Mary Summers.

"Does that mean that more steam is made?" The children thought that it did.

"In the same way," said Miss West, "the hotter the sun is, the more water is drawn up from the ocean, and so the more rain falls. I have told you about hot countries, and cold ones, but not why there are these great differences of heat and cold in different parts of the earth. Now I want to explain this to you."

Then giving Ned Hansom an orange to hold up, to represent the sun, she took out of her desk a wooden ball, which she had had turned on purpose, and on which the equator and circles were traced by lines cut into the wood, and invisible at a short distance. The axes of this miniature earth projected three or four inches, and by them Miss West made the ball revolve slowly from west to east at the proper inclination. Then she gave it to Carrie Blunt to twirl in the same way; and as it was revolving she marked with a little brush full of red

paint, first the northern and the southern tropic, and then the equator, explaining that the latter was half-way between these two. Afterward she drew an ellipse on the floor, making Ned Hansom, orange in hand, one of the foci. Then taking back her ball, she made it revolve on its axis again; and, as Ned held the orange steadily above his head, she walked slowly around the ellipse, showing the different parts of the earth that at different places fell directly under the rays of the sun which brought summer to these parts.

At the same time she showed the children the cause of day and night, and the reason for the varying length of the day at different seasons and in different places. But she was careful to do this only in the most general way, knowing that while the children could comprehend that a body interposing between them and the light would bring shadow, any accurate data given now would confuse them, or else would be seized upon and memorized without being understood. And this would make her lessons in geography repetitions of statements learned, instead of a series of investigations.

So, having shown them that it is hot weather

between the tropics because the sun shines constantly upon some parts of this space, and cold at the poles because so little sunlight can get there, and that the temperate regions, — the children's home, — receive alternately a touch of each climate, she illustrated the subject by referring to the heat that they would feel if standing directly in the rays of the summer sun, and to their recollections of a winter day with a sharp wind. Then she dropped the subject for the present, and, going to the blackboard, drew a large circle with an equator and tropical and polar lines, and also two figures within the circle.

"What is a photograph?" she asked, "and how many of you have seen one?"

All the class had seen photographs, and declared them to be pictures of somebody, or something.

"Are they as large as the persons they are taken for?" asked the teacher, holding up a *carte-de-visite*. "Here is a photograph of Lily White, which she has been kind enough to give me. Is it as large as Lily?" And when this had been answered, she said, "Is there any good reason why a photograph should not be as large as a person?"

"Couldn't carry it around very well," said Frank Blake.

"Right, Frank. And is there any good reason why the picture of a country should not be as large as the country itself?"

"Guess we shouldn't have any place to put it in," cried Johnny Smart.

"Then you will understand that a map does not give the size of a country," said Miss West, "but only its shape as it would seem to us if we could fly a great distance up in the air, and look down upon it."

VIII.

POINTS OF THE COMPASS.

AT the next recitation in geography, Miss West informed the class that the two figures like triangles drawn upon the board in the last lesson, and still remaining there, were maps of North and South America. The next thing was to show the points of the compass.

"If you were in the woods, or on a great prairie," said the teacher, "and wanted to find your way to any place, you would want to know first, in what direction from you that place lay; — north, south, east, or west. And then what else would you have to know?"

After a moment's hesitation, Johnny Smart hazarded the suggestion that it would be a good plan to know which way was north, and the other ways.

"Yes," answered Miss West, "it certainly would; for how could we travel north if we did not know which was north? And so of the

other points. Do any of you know how the Indians in the forest can tell the north?"

Lily White explained that it was because they found moss growing on that side of the trees. Miss West spoke of the compass, by means of which civilized men find their way over ocean and wild; and then she told the class that the north was as sure to be at the top of maps as to be at that side of the trees where the thickest moss grew.

"And where is the south, then?" she asked.

"At the bottom of the maps," cried Frank Blake; and Ned Hansom remarked, that, if the youngest boy understood that, of course all the others did.

"Then, perhaps you can tell me also which is east on the map?" asked the teacher.

But it required Ned standing with his face to the north, and his arms extended, to make this quite plain to all the class. The tropics had been touched upon in a former lesson; the wooden ball in Miss West's hands had revolved around the orange held up to represent the sun; and now it was explained to the children that the equator was midway between the tropics, and divided the earth into two equal parts,— north and south.

After this Miss West showed the equatorial line on the map which she had drawn, and then gave the class the lesson for the two names "North" and "South" prefixed to the continent of America. Then, in pursuance of her method of beginning with what was at hand, she put a dot of chalk upon the place in Massachusetts near where their own town would be found.

"If Leslie were drawn upon the map, it would be about here," she said, laying the pointer upon the dot. "Now, when we look about us, and see how large Leslie is, and what fields, and houses, and trees there are in it, as well as our beautiful river, it seems foolish to say that a little mark like this represents it. But it is no more foolish than to say that a circle this size represents the earth. You cannot begin to imagine how big the earth is."

"Is it a great many times as far to go all around it as to go from here to Westman?" asked Walter Knox.

"Certainly, it is!" cried Johnny Smart, in a tone that made Walter hang his head abashed at having asked a foolish question, until Miss West said emphatically,

"You are quite right, Walter, to try to under-

stand what the size of the earth is like. And we will have a little lesson in it, to try to get it into our minds before we go on. How many miles to Westman?"

"Ten," said a chorus of children's voices.

Taking her crayon, the teacher drew upon the floor ten short, straight lines, side by side. "We will call these the ten miles to Westman," she said. "How many times these do you need to make one hundred miles?"

"Ten times," the children answered; and she marked off ten spaces equal to that which the lines covered, and after the last space wrote the number, "100." Then, when the class had told the number of times one hundred is required to make a thousand, she measured the one hundred spaces with her pointer, and handed this to Mary Summers to mark off on the floor ten spaces of equal length with hers. When this was done, she said,

"We have one thousand miles represented here. But it is twenty-five thousand miles around the earth, so we must measure off twenty-five times this length."

Here, however, a difficulty arose. The thousand miles had already taken up one-third the length of the schoolroom.

"Never mind," said Miss West, smiling. "Let us begin: there is no other way of finishing any thing, you know." So they began to measure, and with three thousand imaginary miles, and a foot of reality left over, reached the end of the schoolroom. Miss West was there. "Go on," she said calmly, opening the window. Then, taking the rod that Ned Hansom had been using, she pushed it out of the window until all but the superfluous foot indoors was measured out in the open air. "Run around the building, and take it, Ned," she said, "and go on measuring; give us the twenty-five thousand miles, and then drive your stake to keep the place. When you are doing your duty, never let windows and doors, or any thing else, stop you."

The class looked from the ten lines marked off for the ten miles to Westman, which they all thought a long distance, to the twenty-five thousand miles marked off as measuring the circumference of the earth; the stake looked very far away as they saw it through the window with Ned Hansom standing beside it. Then with their ten miles as a unit of measurement, Miss West gave them in general terms the length and breadth of North and of South America.

Looking from the dot on the map to the Leslie about them, they began to understand, at least, that this map represented a great deal of country, and to be ready in some degree for the lakes and rivers, mountains and plains, which they were to find were in it.

"What besides land is there in Leslie?" asked Miss West.

After a little thought Lily White said, "Water, — the river."

"Right, Lily. And how many of you know any thing except a river that is made up of water?"

All the hands went up.

"Brooks, ponds, lakes, seas," they said. "And the ocean," added Ned Wilson.

"Yes," said Miss West, "the ocean first of all. Because in different ways they all come from the ocean, and they all go to the ocean again. How many of you have been to the beach?"

Several had not. The teacher asked those who had been what ocean they had seen there.

"The Atlantic," said Johnny Smart.

"Yes, the Atlantic. Now, this is the eastern coast of America," following down the outline with her pointer; "and the Atlantic Ocean lies

along this whole coast; it touches the edges of it, or bounds it, so that we say that America is bounded on the east by the Atlantic Ocean.

"What have we learned comes from the ocean and goes over upon the land?" she asked, after a few words upon the boundary line of shore.

"Little drops of water in clouds," said Willie Sullivan.

"Yes; and then the clouds come against the mountains, and tumble down in rain, and fill up the rivers, and make the trees and corn and things grow," chimed in Agnes Bright.

"But you must not suppose," said Miss West, "that the clouds have always to come against the mountains before the rain falls: sometimes it falls on the seashore where there are not even any hills, but that is because the mountains go to meet the clouds."

She smiled at the puzzled looks of her little listeners, and added, "In a certain way they do, though it is not by travelling along, but by sending messages to the clouds. Yesterday afternoon, Walter, I saw you sitting on the fence in the meadow-land adjoining your father's farm. Johnny Smart was going along the path through the field, and did not even see you. All in a moment you went after him, and

made him turn around, and know you were there, and speak to you; and yet you never moved to do it. How was that?"

"I called him," said Walter.

"Yes, — you sent out something to him. What?"

"His breath," said Lily White.

"Right, Lily; and it is their breath, a part of themselves, that the mountains send out a long distance to the clouds from the sea, and over the sea."

IX.

NATURAL DIVISIONS.

"WHERE do we find that rivers rise?" asked Miss West; "that is, where do they begin?"

As the class hesitated, she reminded them of the roofs and spouts, and of the gutters, those miniature rivers that they had spoken of in a former lesson. Then it was found that rivers rise among the hills.

"Now," said the teacher, "rivers run into the ocean, either directly, or through other rivers; so that, if we can find a range of hills, or mountains, in North America, we can tell something about the length and the size of the rivers between them and the ocean. Here is a range of hills, here is a cluster of them, and here are mountain ranges," she said, as she marked out the Green and the White Mountains, and then went on to draw the Alleghany and the Cumberland ranges, and the principal rivers that flowed from the region of these to

the ocean, going down the coast from Maine to Florida. When this was done, she asked, "How many of you know some of the ways in which rivers are used?"

"To sail boats on," cried Frank Blake.

"And row them," added Lily White.

"And for 'gundalows,' and things," explained Ned Hanson.

"Something else," said Miss West. And as no one spoke, she added, "What are those great brick buildings across the river?"

"Factories," said Johnny Smart; "they have to have water-power, of course."

"Yes; cotton and woollen mills, saw-mills, grain-mills, and factories for nearly all kinds of work, are on rivers. Now, what must we have in factories besides the machinery, and what is called the 'raw material,' — that is, the things to be made up?"

"People to work the machinery," answered the children.

"Yes; there must be people to build the factories, to put up the machinery, people to work it, and people to direct the work. All these must be fed, and clothed, and housed. So men open grocery, and provision, and dry goods, and hardware, and clothing, and

millinery, and all kinds of stores; and masons and carpenters come. Then there must be physicians for the people when they are ill, and ministers and teachers for the churches and schools. And then more people come as more things are needed, and so they keep on. This is the way great cities grow up. Sometimes these are by the ocean, at the mouths of rivers, or near good harbors; and then the ships bring business to them as well as the manufactures, and they grow larger and larger, like New York at the mouth of the Hudson, or the North, and the East Rivers. Now, let us look at some of these larger rivers and harbors, and see if we find large cities there."

Then, having defined a harbor and pointed out Bangor, Boston, New York, Philadelphia, Baltimore, and a number of other large cities, Miss West told the children that they might consider it a rule, that, in countries where civilized people live, they would find large cities near large rivers, or by good harbors. "And why?" she asked.

"Because they like the best places best," said Johnny Smart.

"What do you mean by 'they,' — the people, or the cities?"

Johnny thought it must be the people.

"Mountains are called 'natural divisions,'" said Miss West. "When people come to settle in a country, they do not at first go over mountain ranges, or upon them, unless there is some especial reason; they stay at the side of the mountains that they first come to until that portion is peopled, then the most enterprising move on to new countries. This is the reason why the part of this country east of the mountains is called New England. How many of you have heard of a country named something like this?"

"England," said Mary Summers.

"Yes; and do you know in what direction from here England is?"

Ned Hansom knew that people had to go across the Atlantic Ocean, so he thought it must be east.

"Then people from England crossing the Atlantic," she said, "will reach this side of America first. A long time ago, when they came here, they settled all along the coast," tracing it down with her pointer; "and the English people who came to live at the north called this part of the country 'New England.' I want you to find out and tell me, at our next

lesson, something about New England, and about the English people who first came here, and what they found. Then I may be able to tell you something about them."

X.

NEW ENGLAND.

"Now," said Miss West, looking from one eager face to another, "you know that this time you are to be the teachers. What are you going to tell me about?"

"All we can about New England, and the people who first came over here, and what they found," said Lily White.

"And let us begin with the people," said Miss West. "Who were they?"

"Englishmen," said Frank Blake.

"Right. Englishmen and Englishwomen," answered Miss West. "And why did they leave England?"

"Suppose they didn't like it there," suggested Ned Hansom.

"They loved England dearly," said the teacher; "it was their own country and their home. And if they brought their families here with them, they left their friends behind.

Many of them left beautiful homes, great houses and gardens and parks, to come into a wilderness; for they found no houses, or farms, or factories here, no churches or schoolhouses, not even any roads, but only rocks and sand on the seashore, and, as they went away from the ocean, great forests so thick and dark and pathless that it seemed as if one might wander forever in them. And then, on the edge of these, or beside great rivers, were Indian villages of tents, or wigwams as they call the homes they build. The Indians hunted and fished for their food, for in those days there were no shops and markets here as we have now. This was part of what the English found when they landed from a ship that we should think very small. It was the beginning of winter, and of a very cold winter, when they landed at Plymouth in our own State. They cut wood in the forests for fires, and to build houses, and churches, and schoolhouses; they ploughed the land, and sowed corn, and grain of all kinds. And though they suffered so much, and a good many of them died from cold and hardship, yet they would not go back again to their old homes where the land was all ready to be sowed, and the houses all built, as they could

not have them here at first. Why were they so brave, and what made them willing to suffer here rather than go back?"

"A book I looked at said they were persecuted for their religion," said Agnes Bright; "but I don't know what that means."

"How many churches are there in Leslie?" asked Miss West. The children named five, each one belonging to a different denomination. "Now, on Sunday," she said, "some of you go to one church, and some to another, and nobody thinks it is wrong. But a great many years ago it was very different." And she went on to explain to them what religious persecution was, and how it was that the Pilgrims were in themselves a little nation on board the "Mayflower." She told all this so simply that the children understood her when she told them that it was not, in the first place, money or business, though both soon came here, or fine houses, or any thing like these things, that had made New England strong and great, but because the people in it, though they made many mistakes, wanted to do what they thought was right, and were willing to suffer for the sake of doing it.

"When you come to study history, you will

learn a great deal more about them," she went on. "But the little we have said to-day shows you that the New-England settlers were not afraid of hard things to do, but went to work with all their might to make them easier. Now, before we go on to what they found here to be done, I should like each one of you to tell me something about these people, — any thing you may have heard out of school, or found in any book."

Miss West listened with pleasure to the items brought in by her little pupils. Evidently, they had done their best. But some of the remarks were amusing. It was at Johnny Smart's comment, however, that nothing had been told about the Indians, that she said,

"That comes under the second part, — what the Englishmen found here. We shall come across, not only many Indians, but rivers, and mountains, before we find the white men, as they were called, in possession of New England."

XI.

HIGHWAYS AND BARRIERS.

"You understand," said Miss West, "that it was not only to Massachusetts where we live that the English people we were speaking of came, but all along this shore (drawing her pointer down the coast). They could come here easily across the ocean. The ocean is called the highway of nations; do any of you know why?"

"Because all the people go on it," said Johnny Smart.

"Right. A highway is a great road that every one travels on, whether it is on land or water. Let us see how it is in Leslie: if we are on one side of our river, how can we get to the other?"

The children suggested by a bridge, or a boat, and little Frank Blake added that one might slide across in winter.

"But if we have none of these ways, then

the ocean would not be a highway to us, would it?" asked Miss West. "Now, the ocean is never frozen, — at least, not where we can travel upon it, — and nobody could build a bridge long enough to reach across; so that if people have not boats, — and big ones that we call ships, — the ocean is not a highway to them. They are in the same case that you are when you go running down to the shore, and come to the waves; you have to stop. The people have to stop, too, until they learn how to build ships. Before they learn, they find the ocean a barrier instead of a highway. What is a barrier?" and she wrote the word on the board, syllabifying it as she had done "highways."

Mary Summers suggested that it had something to do with bars. Then Miss West explained the word fully, and showed how mountains and deserts, as well as oceans, had been barriers between nations. She told the children how long America had been unknown to Europe, and in general terms described the difference in civilization between the English who came here and the Indians whom they found living in wigwams, hunting and fishing for food, using canoes, but knowing nothing

about ships, or houses, or other things that we have to-day. She said nothing of the French, or the Spanish settlements in North America, leaving those to be learned later.

Then, going to the map, she showed them mountain ranges running more or less brokenly down the eastern coast of North America, and explained how these had been for a time a barrier to the English people settling in America, because at the first there were only a few people; so that, instead of wandering off into the forests and over the mountains, they had kept near the ocean, like keeping near the road, so that more people from England could come to them in the ships. She showed them the navigable rivers here, and explained how useful they were for means of communication, and of transportation.

"But you must know," she said, "that the people who had come three thousand miles," — which she made the children estimate by the scale of miles they had made, — "three thousand miles to be free to do what they thought was right, were not afraid to cross mountain ranges, or do any thing else. But at first they had enough to do to fight against their three enemies."

"Three!" cried Johnny Smart. "I never heard of any but Indians."

"Jack Frost," said Miss West, smiling. "I mean," she added, "that it was colder weather than they had been used to; and the other enemy was the great forest that they had to cut down to get land for corn and other food. I called these enemies, because the people had to fight hard against them; but they were no more real enemies than I should be yours, if I should see you going to do wrong, and frown to make you do right, for these people had to work so hard against the winter, that they grew strong, and learned how to make things comfortable; and the forests which they cut down, not only gave them wood to burn, and to build with, as I told you, but brought them a great deal of money when they sold the wood. Thus, their only real enemies were the Indians; and these would often have been friendly, if the English had been just and kind to them. But that is a subject you will learn about later. After the people had lived here a good while, and conquered their three enemies, they went across the mountains. Do any of you remember a name we gave to mountain ranges?"

"Water-sheds," said Lily White.

"Yes. Now, just as the streams on the eastern side flow down into the ocean, so the streams on the western side flow into some place, which we shall find out as we come to it, — a place which had been seen by a few brave men, but was not really known until people came to live near it, and beside it. Do you suppose that it is land, or water, that water flows into?"

"Water," they said.

Then Miss West showed the Rocky Mountains, and the majestic river that flows through this cradle between the eastern and the western ranges. "Next time," she said, "we will begin with the Mississippi Valley and the Basin of the Great Lakes."

XII.

FROM THE LAKES TO THE GULF.

"FRANK," said Miss West to little Frank Blake, "if you and your grown-up brother, Edward, should start together to walk from this schoolhouse to your home, if each walked as fast as he could, which would get there first?"

"Ned," answered Frank.

"Why?"

"Because he's grown up, and can take longer steps than I can, — only, I might run."

Miss West smiled, and said, "No."

"In the history of the United States, which you are beginning now, you must remember one thing," she went on, — "the way it was settled, and the way that most countries are settled. There is the same difference that there is between Frank's big brother getting over the ground, and Frank himself trying to do it." Miss West waited a moment, looking at the children, then she said, "Now I wish that some

of my class could tell me what I mean. Won't you try? Think very hard."

There was a long pause, and at last Lily White asked if she meant that most countries were settled by children.

"Yes, and no," answered the teacher. "No, because they were not really children in age; and yes, because sometimes they were not grown up in their minds, in the knowledge of how to conquer difficulties, and, most of all, in their wish to be educated and to be free. The people who came here from England knew what to do, how to put the country into order, how to bridge the rivers, and build the cities; they did not have it all to learn after they had settled here, because they came from a country of cities and towns where business of all kinds was carried on, and they brought their knowledge with them. Now, in the same way a great many of the people out West came from New England, and they took with them the knowledge of how to do things. So, the great valley of the Mississippi and the basin of the Great Lakes, or at least a part of these, are full of people, and cities, and business. Now we want to find out what kind of country it is, and where the great cities in it are, as well as about the

lakes and rivers. What should any of you try to do, if you were looking for a place to build a house upon?"

"Try to get a first-class place," cried Johnny Smart.

"In the same way here you will find that the cities are in the first-class places, as you call them, for business. Ned Hansom, please draw for us on the board the eastern coast of the United States, with the name of the ocean that borders it, and with the mountains and the large rivers that flow from these into the ocean. Draw it well to the east, so that we shall have room for the great valley, and the mountains west."

When this map had been done, Miss West outlined behind it the Great Lakes, and the Rocky Mountains. She then drew a dotted line down the lowest part of the valley, between these and the eastern ranges; she made it from lakes to gulf, and explained its meaning. "Let us imagine," she said, two long rows of roofs, with gutters and spouts, standing facing each other, on the sides of a broad street. Let us say that one row of buildings is a good deal higher than the other, and that the street-gutter is only on the side of the street nearer the

lower buildings, because the street itself slopes from the other side. Now, when it rains, what will happen?"

"Water will pour down the roofs, down the spouts, across the sidewalks and the street into the gutter," was the substance of the children's answer.

"Why?"

"Because it is the lowest place," said Carrie Blunt.

"So that, if we find the lowest place in the valley, what will be there?"

"A river."

"Yes, a river; and, together with its largest tributary, the longest river in the world, — the Mississippi. Now, on which side of what would be the exact middle distance between these mountains, does the Mississippi lie? Look at my line."

"On the eastern."

"Then, on which side of the Mississippi does there come the largest river to flow into it?"

"From the western," cried Johnny Smart, "because it has the longest way to run."

"You are right," said the teacher; "and you always will be when you make use of your common sense as much for your studies as for your

play. If I should tell you merely that the Missouri River is the largest stream that flows into the Mississippi, and that it comes from the west, you might forget it; but if you see why it is the largest, I don't think you will."

"It's good fun to know the 'whys,'" said Carrie Blunt.

"It makes me keep thinking of other whys about other things," said Lily White, "and, somehow, things belong to us more; it don't seem so funny children should have to learn lessons, I mean."

"And perhaps we could tell some things ourselves," said Fred White.

"I don't doubt it," said Miss West warmly. "Wouldn't you like to tell me about the Mississippi valley, and all the land that slopes to it?" And she hung upon the board an excellent map of North America. "Try! if you fail, it's no harm; and if you succeed, it will be splendid."

"First, away up north," began Mary Summers, "there's an ocean, and there's a big river that runs into it; so the land there must slope down from some place like a ridge-pole, as you told us."

"I see," cried Ned Hansom. "There's your

ridge-pole, it runs right up on the west, there. But there ought to be some mountains down there between the rivers that run down hill, and the up ones, — I mean south and north."

Miss West showed an offshoot of the Rocky Mountains running a little distance toward the east, and explained that the land had a gradual slope each way, but not enough to be mapped as mountains.

"Then, those big lakes," cried Johnny. "Miss West, do they empty from one into the other, just as if we should take big bowls, and keep pouring water from one into the other?"

But here the clock struck twelve; and the children were dismissed, eager to think and learn all that they could upon the subject before the next lesson.

XIII.

THE TREND OF COUNTRIES.

MISS WEST drew upon the board the outline of North America; then she called upon the children to give her the mountain ranges. When these had been put in, she asked who would describe the trend of the land; and before that, who would tell her what "trend" meant. "But first let me give you an illustration," she added. "Johnny Smart sometimes does not pay attention to his lessons, and sometimes does wrong things, but the trend of his behavior is good. Now, what does 'trend' mean?"

After a pause, Lily White asked if it meant what almost always happened.

"Right, Lily, it means what is almost always so, or, as you would find it in the dictionary, 'general direction.' You will need this word all through your school-life, at least, and I want you to learn it. The trend of a country is its

general direction up or down, and doesn't count little parts that are different. Now, we have studied about the land east of the Alleghanies, and we have seen that the Mississippi River is the lowest part of the great valley between the Alleghanies and the Rockies. Now, what is the trend of the land between this eastern range and the Mississippi River?"

"Why, it's a water-shed," cried Frank Blake.

"True. Then, how does the land run, — that is, trend?"

"Down to the river."

"And how does the river trend?"

"Down to the water, down there," said Carrie Blunt.

"The Gulf of Mexico," said Miss West. "How many of you have ever seen a grocer weigh sugar?" (All had.) "What did he take it up in?"

"A scoop," they said.

"How does he get it into the scales?"

"Why, he tips it, of course," cried Johnny Smart, with the air of, "Who doesn't know that?"

"Very true. Now, we have seen how the water got from the mountains into the Missis-

sippi, but how does it get from the river into the Gulf?"

"Is it tipped down there?" inquired Ned Hansom timidly.

"Certainly. What tips it?" There was a silence. "What carries, or tips it, from the mountains?"

"The water-sheds."

"What did we say they were? What new word have I just given you?"

"The trend of the land, do you mean?" cried Walter Knox.

"That is exactly what I do mean," said the teacher, smiling. "The land slopes, not almost straight down, as a sugar-scoop does to empty sugar, but a little; and, where the river empties, so little, that, instead of rushing down in one great channel, it breaks up into a great many little ones, and flows along as if it could not think of hurrying. Now, the space that a river drains is called its basin; and so this is what?"

"The basin of the Mississippi," responded the class.

"And is the trend of the land north, or south?"

"South."

"Right. Now, how is it out West, — hilly?"

"No, indeed!" cried Ned Hansom, "I guess not."

"Oh! do you *guess*, Ned?"

The boy hung his head a moment, and answered, "I mean I *think*, — no, I mean I know it is flat."

"You see a little rise, and forget where you are, and think it's going to be a hill," said Miss West; "and it turns out scarcely any height at all, but it spreads over a great deal of land."

"I suppose because there is so much out there," volunteered Mary Summers.

"I suppose so," answered the teacher; and she explained about the grain-growing lands of the West, and the vast stretch of the prairies. She also told the children about the richness of alluvial soil, and of the tropical products of the States through or near which the Southern Mississippi flows. Then she explained to them what alluvial soil is, and, in showing them where it came from, went back again to the mountain ranges.

"How many of you ever started at the top of a steep hill to run down it?" she asked. (A number of little hands went up.) "And

what did you do when you got to the bottom?"

"Kept on running," said Lily.

"Why?"

"Got started, teacher," said little Frank.

"Then, if it should rain very hard on the top of the mountains, and some of the soil should loosen and fall into the river, what would it do?"

"Keep on running after it got down hill," they answered.

"Yes, though not all of it; but it would begin so fast, that it would still go on when there was not much slope; just as when, after a while you stopped running at the bottom of the hill, you began to walk."

"But you said all the soil didn't go all the way," said Lily White; "but that isn't what we do, — every bit of us goes on."

"What! when you get very warm with running, and take off your sack, and get somebody to carry it for you? That's the way the water leaves its heaviest burdens as it goes along, and carries the lightest and the best with it, just as you yourselves are better than any thing you can wear."

"Well," said Johnny Smart, "I'm sure I

shall never forget how alluvial soil comes, — like running down hill, and taking off your jacket, and keeping on walking."

"That may seem all a game to you," said Miss West; "but, if you remember it, you will know where to look all over the world for fruitful countries."

XIV.

MOUNTAINS AND RIVERS.

"Now, we will go farther on," said Miss West, "and see what kind of country lies between the valley of the Mississippi and the Pacific Ocean. What lies directly west of this valley?"

"The Rocky Mountains," answered the class.

Then Miss West went to the board, and drew a horizontal line. To the right of the middle of this line, she made a cross; to the right of this cross, another; and upon this last, erected a perpendicular. Then to the left of the centre of the horizontal, she made another cross, and upon it erected another perpendicular, higher than the first. From the top of each perpendicular she drew a line to the first cross that she had made. "Here is the Mississippi River," she said of this cross; "and this perpendicular on the right stands for the Alleghanies, and the one on the west for the Rockies. Now, the Rocky Mountains are the higher, but they are the farther off. Neither range goes

up sharply to the top, like a pitch-roof. But on both sides from the Mississippi you can go on and on, and often not realize that you are coming to mountains at all. You seem only to be going up a good many long hills that are not very steep, and you find plenty of level places between them. The difference is, that west of the Mississippi you have to go farther to get to the mountains. Now, west of the Rockies is another range before we come to the Pacific. These are the Sierra Nevadas. And she drew them upon the unfinished map of North America. Then, putting chairs down each side of a table to represent mountain ranges, she showed the children the meaning of table-lands, and told them about the nature of the table-lands between the western ranges, about the rivers there finding no outlet to the ocean, about the great salt lakes there, and the smaller ones. She also marked upon the map the Rocky Mountain range running northward to the Arctic Ocean, and southward, brokenly, almost to the isthmus, to be renewed with greater energy on the other side of it. She showed the children the short Coast Range also, and, having thus marked out the elevations, asked them to point out the trend of the rivers. This they

did with tolerable accuracy. She told them something of the climate and products of California, and found that many of them already knew its famous metal. Then she went northward, drew the outlines of Alaska, and, going to British America, showed the Mackenzie River, in a certain sense the balance of the Mississippi, draining a large amount of country. She showed them some of the lakes and their outflows, and that low central table-land which divides Hudson's Bay and its tributary waters from the Great Lakes and the valleys to the south of these.

"Now, we have come to the great lakes at last," she said. "How many are there?" And she stood back from the board, for her explanations and names had been following the lines of her ready crayon.

"Five," answered Mary Summers.

"Right. Will any one name them?"

Some knew the name of one, and some that of another; and with a little help from the teacher, they were all given.

"Which is the largest one, — the superior?" asked Miss West.

Johnny Smart laughed, and said that she had told them.

"Now," she went on, "you must imagine that these are five great saucers of different sizes; and you must remember that they flow from one into the other, like sluices."

"That's the reason Niagara Falls goes over so fast, is it, teacher?" asked Frank Blake. "'Cause it has four lakes-full to empty, and it has to be in a hurry?"

The children laughed, but Miss West thought that this was not a bad way of remembering it.

Then she drew the river and the Gulf of St. Lawrence, and so came round again to the Atlantic Ocean, from which she had started.

"Now, this is what I am going to do," she said. "Here is the map of North America, and particularly of the United States, our part of it. I shall leave it as it is until the next lesson, and then I want you to be able to tell me where to put in some of the large cities and the names of them. You may study any maps you please, and talk it over among yourselves as much as you like; but how many will promise me not to ask a question about it outside the class, or try to find out from any but each other?" Every hand went up. "I will give you one hint," added Miss West. "Large cities need to be beside water."

XV.

CITIES.

As Miss West looked at the eager faces of her little pupils, she thought that it was an excellent plan to give them something to find out for themselves. She called first upon Lily White to name a large city, and to tell her what she knew about it. Lily gave New York and its situation. It had been there a long time, she said, for she had always heard of it.

"Guess it's older than you are," cried Johnny Smart. "My father went there once when he was a boy."

"And it's a good deal older than that," said Miss West, not allowing herself to look any thing but grave.

"I told you about the English first settling this country on the coast of New England, and of Virginia, which is a good deal farther south. But the Dutch people, who, like the English, were great navigators, — that is, travellers by

water, — came first to New York, and named the town after one of their own cities. Then it came to belong to the English, and, so, to us. What kind of a city is it?"

"Awfully big," said Carrie Blunt.

"As large as some of the other cities in America?" questioned the teacher.

Frank Blake "guessed so," but none of the children were sure. Miss West told them the relative size of the city, and something of its importance, especially in a commercial way; she spoke of its harbor, and of the ships from the different nations to be found there. Then, after a little talk about the appearance and the wealth of New York, she asked Mary Summers to name another large city.

Mary said that Boston was on the Atlantic, too, and on the Charles River; and she thought that it must be pretty important to have a State House with a gilt dome.

"Don't all cities have State Houses, teacher?" inquired Frank Blake. Miss West repeated the question to the class.

"I guess — I think not," answered Johnny Smart.

"Why do you think not?"

But the boy seemed to have no better reason

than that he had heard the State House at Boston spoken of, but not any in other places.

"What is a State House for?" asked Miss West.

Ned Hansom said that it was where people did something, but he had forgotten what.

"When your fathers voted last autumn," said Miss West to the class, "wasn't there somebody from this district, — somebody about here, — that they voted for, as well as for the governor?"

"Yes, two," cried Johnny Smart, naming them both; "but only one got it. They ran against each other, you know."

"And I guess it was one of them that knocked the other one down," piped Frank Blake; "'cause one went off somewhere; and the other he staid round and took care of the store, just as he used to before he was up."

This time Miss West couldn't help smiling, but she told Frank that he had done very well. "What was Mr. D——, the one who was sent off, sent for?" she asked.

"He was our representative," said Fred White. "What does that mean?"

Miss West explained as much of the construction and object of the State Legislature as she thought the children could understand, and

then she asked where Mr. D—— had gone. Several of the children knew that it was to Boston. She then explained the use of this State House that Mary Summers had valued so highly. She told them also that the city where the Legislature of a State met was called its capital, and so, that in every State there was a capital. But the children had not begun to study political divisions, and she did not enlarge upon this subject.

"Is the biggest city in a State the capital of it?" questioned Ned Hansom.

"Not necessarily. Since the representatives are chosen from all parts of a State, it is a rule to put the capital somewhere near the centre, to make it convenient for all; but this rule is not always followed."

"It isn't in Boston, teacher," said John Smart.

"Not as Massachusetts is at present. But in old times, when the colony of Massachusetts Bay included what is now Maine and New Hampshire, and stretched far down, as well as up, Boston was much nearer the middle of the coast-line than it is to-day. But by and by we shall come back to these things, for we shall study about the division of the world into states

and nations. Now I am asking you about these cities to show you, more than any thing else, the use that rivers and lakes, and the ocean are to us. Ned, can you name another large city?"

"Chicago," answered the boy.

Then the children named Cincinnati, St. Louis, New Orleans, San Francisco, Washington, Philadelphia; and Mary Summers even thought of Montreal, "because there was plenty of water there." Miss West added Quebec, and told them that they had done well, especially as they had given the name of the water upon which each city stood. She added the city of Mexico also, and told the children a little about the Mexicans, how the country was at first settled by people different from the English who came here, and how they had always remained different. She showed them the West Indies, and told them how Columbus, who had discovered America, first landed there; and she promised them that they should see the country from which he came, and should learn why it was wonderful for him to come, and is not at all so for people to take the same voyage now. Then she showed how the Atlantic and the Pacific Oceans looked at each other across the Isthmus.

XVI.

SOUTH AMERICA.

AT this recitation Miss West said, "I have been trying to teach you how to learn from things you know, about other things greater than those things that you had not heard about before, and yet that were under the same laws. I want to see how much of it all you have understood and remembered. I have drawn for you upon the board the map of South America, putting it under North America, as it really lies, and have marked the line of the equator. Now I expect you, from what you know, to tell me a great deal about this country. When you think of something to say about it, raise your hands. — Lily?"

"It is nearly the shape of a triangle, with the big end at the top," said Lily White.

"The mountains run down the west side of it," said Ned Hansom; "and I guess by the blackness, — I mean whiteness, — the heaviness

of some of them, — that they're pretty good-sized mountains."

"Does anybody know the name of this range?" asked Miss West.

But she had not looked for an answer; and when she told them, she sent Mary Summers to the board, to write "Andes" along the range.

"What else?" she asked them.

"The Atlantic Ocean on the east, and the Pacific on the west," suggested Willie Sullivan.

"Right. If we were to sail from New York to this point," touching the mouth of the Amazon, "what water should we sail through, and in what direction?"

"South, and through the Atlantic" said Fred White.

"Then, when we go to the beach, we see the same ocean that runs all along which shore of North and South America?"

"The eastern," answered a chorus.

"North of South America there is a part of the ocean that has a great many islands in it, — some of them the islands that Columbus found, you remember. This is called a sea." And Miss West had the name of it written down.

"It looks all alike," said Frank Blake: "how can you tell which is the sea, and which is the ocean?"

"Don't you remember that your father's field, down on the meadow-land, and Mr. White's next it, have no fence between them?" asked Miss West.

The children did remember.

"When you are down there playing, do you always know just which field you are in?"

They did not.

"Do you think that Mr. Blake and Mr. White know?"

"My father does," said Fred: "it's all down in the deed, — how many rods and feet."

"That is the way that the seamen know where the ocean and the sea meet," said the teacher: "it is all put down upon their charts. Ships sail by charts, or maps, of the ocean, just as we travel by roads.

"But to go back to South America. It is bounded on the north, by this sea; on the east, by the Atlantic, as you said; on the west, by the same ocean that lies west of North America, the?" —

"Pacific," said the children.

"And on the south is that cold ocean that

corresponds to the frozen ocean north of North America."

"The Arctic?" asked Fred White.

"The Arctic; and this is the Anti- or Ant-arctic, which means opposite, or over against, the Arctic. And now I want you all to tell me whatever you can think of about the country."

"Short rivers on the west side," said Carrie Blunt.

"Why?"

"Because the mountains are close to the shore there, and the rivers don't have a chance to run any distance before they get to the ocean," she said.

"Then, on the other side they're long, of course," cried Johnny Smart; "or, anyway, they're long up at the north, where it's so broad; and farther down, I notice, they have a way of running lengthwise instead of straight across, and so they get in lots of extra length."

"Any more mountain ranges?" asked Miss West.

"Yes," said Ned Hansom, "some in the east shoulder."

The children laughed at Ned's description, and the teacher told them that these Brazilian

ranges were just a little like the Alleghany system.

They pointed out the three largest rivers, and learned that the great river-basins, or plains, of South America were called "llanos," "silvas," and "pampas."

When Frank Blake had pointed out the equator, the children saw that the Orinoco was near it, that the tributaries of the La Plata rose near it, but that the Amazon emptied into the ocean directly under it.

"Now, let us go back," said Miss West. "Do you remember, that, a number of lessons ago, you learned that two things made vegetation luxuriant? What were they?"

"Heat and moisture," cried Carrie Blunt.

"Right. Now, here is a river in the tropics, that is in the hottest part of the earth, therefore we must have heat. It is the largest river in the world; and you can have a little idea of the great quantity of water that it brings down from the mountains when I tell you that at its mouth, — that is, where it empties into the Atlantic Ocean, — it is almost one hundred miles wide. Think of a river as far across as from here to Boston."

"And how long is it?" asked Johnny Smart.

"Four thousand miles from the Andes Mountains to what Ned calls the east shoulder. But you know that a river does not run straight, — it usually wanders about here and there, and travels a longer distance over the same country than a railroad would."

"Just as if I came straight to school, and Johnny went all round the fields, and criss-crossed the road," said Willie Sullivan.

"Just the same," answered Miss West.

And then the class traced the course of the Amazon.

"The plains of the Amazon River are called, what?" asked the teacher.

"Silvas," said the class.

"Silva means a wood, or forest," she said; "and these plains that the river flows through are called silvas, because for fifteen hundred miles they are covered with forests so thick that there is no road through them. These forests are in some places three hundred miles wide, and in others twice as wide as that; and they are so dense, so thick, that no people live there; they are full of wild beasts and serpents, and beautiful birds, and insects, but you would not find there a human being."

"How do people know any thing about it if

they can't get through?" inquired Johnny Smart, with the air of having cornered his teacher.

"Very good," said Miss West. "I will ask the class that question."

After a minute of silence, Lily White suggested that Miss West had said that the river went through. Perhaps people went by that.

"Still better," said the teacher. "Do any of you remember, that, when we were speaking of tropical vegetation, I told you of a certain river where trees such as we never see here, — trees with beautiful foliage and with flowers, — grew along the banks? Do you remember my telling you that the trees were so close together, and the undergrowth so dense, that sometimes for miles the travellers could not find room to step ashore? That river was the Amazon."

Then Miss West told the children more about the luxuriant vegetation of the South-American tropics and the brilliant plumage of the birds there. She told them, that, when Europeans first came to South America, they found no horses, or oxen, or sheep there, but plenty of gold and silver. She told them what kind of people they were who came, and how they destroyed the inhabitants for the sake of their

riches. Also, she gave a short account of the Andes Mountains, among which these people were found, and of the other parts of the country.

And she saw with satisfaction that the class discovered several large cities from their position.

XVII.

AFRICA.

"I HAVE taken Africa for our lesson to-day," said Miss West, "because it is more simple than the other divisions. I have drawn the map of it clearly, and I hope that you will have something to tell me about it."

"It puts me in mind of South America, in shape," suggested Fred White.

"There isn't so much water in it," said Lily.

"I should think not. Look at that great desert," cried Johnny Smart. And, in answer to Miss West's question of what a desert was, he said that it was like the sand-bank over beyond the pond, only a thousand times bigger and hotter.

"This desert is a thousand thousand times bigger," said Miss West; "and although it is not a thousand times hotter than that bank is on a summer's day, yet, if you were crossing this desert, you would think so. In the first

place, it is really very much hotter, as well as being so much larger; and then there is another reason. Do any of you think of it?"

"If you are hot on the sand-bank, you can go under the trees, and cool off," suggested Carrie Blunt; "but there are no trees over there, you said."

"Only in the little spots where the wells are," said Frank Blake; at which Miss West said, that, though Frank was the smallest boy in the class, he didn't have the shortest memory.

Then the children had a little talk with her about desert travel, and the late war in the Soudan.

"Is that the Nile?" asked Mary Summers, with the pointer on the chalk-line representing that famous river.

Miss West asked her to write the name beside it; and then she told the children of the efforts that had been made to discover the sources of this river, and of the final success.

"Let me see," said Johnny Smart; "there ought to be some big cities on this river, especially as there don't seem to be many other rivers about; I mean many compared to the other countries."

"In some parts of Africa," said Miss West, "we have the two things necessary to vegetation, — heat and moisture; and in other parts, what two things should you expect to find, looking at the deserts, and remembering that so much of Africa is in the tropics?"

"Heat and dryness," said Ned Hansom.

"Yes. Does the dryness make the heat more, or less?"

"I'm always hotter when I'm dry," responded Frank Blake.

The children laughed. But Miss West told them that, after all, the ground was like us, and that, though Frank's was a funny way of putting the thing, it wasn't bad.

"Because it's the truth," persisted the boy.

"Yes, because it's the truth, Frank. The ground that is very dry gets what we call *baked* by the heat, and heats the air that passes over it. This is one reason why Africa is the hottest country in the world."

"What is the other?" asked Johnny Smart.

Miss West outlined North and South America, and asked on which continent, here or in Africa, was the greater quantity of land within the tropics. The class answered correctly; and their own limited experience had taught them

that it was cooler on the water than on the land, especially in the sunshine. And from the comparison of a certain sandy, shadeless walk in Leslie with another smooth and well-shaded walk, both of which all the children knew, they came to understand in a general way why it must be very hot in Africa, which was as much comprehension of the matter as Miss West aimed at for the present. "We have seen," she said, "that people in hot countries are darker than people in cooler ones. What color are the Africans?"

"Black," said Ned Hansom.

"I suppose they're the darkest color because it's the hottest country," said Lily White.

"I suppose that has something to do with it," answered Miss West. "At any rate, it is a good way to remember two useful facts. But you must not think that all Africa is a desert, or is inhabited by black people. The north and north-eastern parts are peopled by a race that came over from Asia; and down in the southern part, where diamonds are found, there are colonies of Dutch and of English, just as we know that they came long ago to America."

"What is there in between?" asked Mary Summers.

"There are mountains and lakes, and a great many tribes of black people: there are also elephants, lions, and a great many other fierce beasts. There are enormous birds also, and among them ostriches; but the truth is, that, besides knowing that all these are to be found, we do not know what is in the centre of Africa as we do of other countries. The heat, the unhealthiness, the jungles, and the fierceness of the people there, have kept out travellers. It is only very lately that we have learned any thing about the country."

"Teacher, what are 'jungles'?" inquired Fred White.

"Did you ever get into a wood with thick underbrush?" she said.

All the boys knew what that was. Then Miss West explained that the underbrush that they knew about was to an African jungle something what the sandbank across the pond was to an African desert, and that the jungle was not only to be dreaded in itself, but was the home of terrible lions and of other wild beasts. Then she told them a very few of the things that Stanley had learned of this dark continent. She showed them the native place of the coffee-plant, and told them of the palm-

trees of Africa. Then, after the children, from what they had learned, had shown in what region the chief cities and towns must lie, she took them to Egypt, and told something of the wonders of that land, not attempting to give its history, but citing a few facts only, and those in sufficient detail to interest the children. And after this she had ready for them some pictures of street-scenes in Cairo.

XVIII.

EUROPE AND ASIA.

IT seemed to the children at first that this next country which they had to study about was very large; and then, as they looked more carefully at the map drawn upon the board, one part of it seemed familiar.

"Why, that part is Africa; do they have two Africas?" cried Mary Summers.

"No, there is only one Africa, but it is so closely connected with the other continents that I have drawn it again to show them to you all together. People have gone back and forth a great deal between these continents. You see how different it is from Africa or Europe and America. And, too, between Asia and America is a great ocean, except at one point where the two continents come near to each other, but there it is so cold that there is no travel."

"Do the black people from Africa come over

into the other countries?" asked Johnny Smart. "Is that the way they come to be around here?"

Outlining on the board the map of North and of South America, Miss West showed its position from Africa, and then told the children of the origin of the slave-trade upon this continent. She told them how the cruel Spaniards had worked the Indians to death in the mines seeking for gold and silver, and how a priest, knowing that the Africans were stronger than the Indians, had proposed to take them instead. She told, also, in the briefest way, of the war that had come upon our own country in consequence.

"So, you see," she said, "that the blacks have not, of their own will, left their country; and there is a reason for this. Can any of you guess it?"

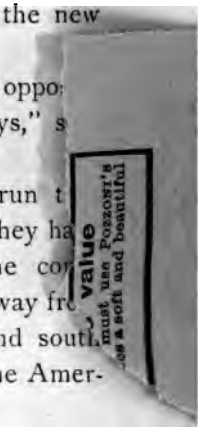
"It is hotter there than anywhere else, you said," hazarded Willie Sullivan at last.

"Yes; you have found out the reason why they prefer to stay at home," she answered, "or at least one reason." And then she showed the children where other people, not black, live in Africa, and showed them how at least some of these had been voyagers across

the Mediterranean. She sketched also the Mohammedan conquests which had brought Asia into Africa. Then she turned to the new lesson, — Europe and Asia.

"These countries seem to go the oppo way from America; they run sideways," s Carrie Blunt.

"Yes; and lots of the mountains run t way too," added Fred White; "and they ha their water-sheds in the middle of the co nents, and the rivers run down each way fr them; only, they run sort of north and south instead of sort of east and west, like the American rivers. I don't see why."



"In one respect the mountains are like those in America," said Miss West. "Does any one see how?"

"They run the longest way of the land," said Lily White.

"It is so in Africa, too, if only we take that with Asia and Europe as one continent," said the teacher, expressing her pleasure at this answer. Then she called for other remarks.

"I think that part," said Frank Blake, pointing to Europe, "looks as if it was speckled all over with holes. Are they ponds, teacher?"

"Yes, Frank; only ponds so big that we call them lakes, or seas, or gulfs."

"Big enough to sail on?" asked the boy.

"Yes, big enough to learn to sail on very well, but so small that the sailors soon knew all about them, and sought to find other waters and countries, just as you sometimes grow tired of your old play-grounds, and look for new ones. So at last these people from Europe began to sail all over the world, and find the unknown countries there. It was by sailing gradually farther and farther, that at last they were led to believe that there was more land which they had not yet found. That is, at first one man thought so, and then persuaded others to agree with him. But you know about Columbus, and how he came to America from the king and queen of Spain; and after this," continued Miss West, "people from two other countries of Europe came to North America, some of them to the very part where we are now living, and others to a place not very far from here."

"The English?" cried Ned Hansom. Then came a pause.

"Oh! I know," cried Lily White. "It was the Dutch, because they came to New York."

Then Miss West showed the children the Netherlands, and told them the nature of the country. She told them, also, of the industry and the courage of the Netherlanders, and that all their prosperity depended upon their commerce; "and as to the English," she said, "they live upon an island, so that they have been obliged to know how to sail."

"Or they would never get off," interposed Carrie Blunt.

"It is a large island, not far from the Netherlands," Miss West went on; "and there is a smaller one near it. Who will point them out to me? Frank, will you try?"

Frank succeeded, and thenceforth the little fellow seemed to feel a certain pride of discovery in England.

Then Miss West passed to Asia, told the class the height of the mountain ranges there, in which of them gold was found, the depth of some of the valleys. She found that the children remembered the facts about the southern slopes of mountains when she came to the temperature of different places. She told them, also, the places in which precious stones are found, where the beds of the finest pearls lie, and how men dive for them; where spices and

tropical fruits grow; and a very little about the way in which some of the people live, especially the Arabs. She also showed them Palestine, and some of the cities named in sacred history.

Fred White remarked that they had seen a map in Sunday school, and that it had those places on it; but, somehow, he had never thought of Palestine being in any other country.

Then the teacher showed them how men passed from Asia Minor into Europe; and there, partly by their own observations, partly by her statements, the children came to have an idea of the climates and the principal countries. There was so much to be told, that Miss West was careful not to give, at one time, more than they could grasp; but she did say that in Europe were strong and great nations, which sent out people to different parts of the world, and had colonies there, as in early times the English and the Dutch had sent out colonies to America.

"And do the colonies set up for themselves when they get grown up, as we did?" inquired Johnny Smart.

XIX.

AUSTRALIA.

"I TOLD you that many of the nations of Europe had colonies in other lands," said Miss West. "England is first in this respect. You know that the cities of Quebec and Montreal, which we talked about some time ago, are in Canada, and that Canada and the country north of it belong to England. I told you, also, that English people were in the southern part of Africa; but besides these, there are other colonies, among them the largest island in the world, — so large that it is sometimes called a continent, as the other divisions that we have been studying about are.

"This island, with others near by, is south-east of Asia. How many of you ever heard of Australia?" Willie Sullivan had heard the name, but had not known what it meant. Miss West drew the map of the island, with its mountain ranges, which the children defined as

running from north to south. Johnny Smart gave it as his opinion that the mountains were fond of running from north to south, but Lily White reminded him of Asia.

The teacher then spoke of the beautiful climate of Southern Australia, but said that the island had one serious disadvantage. "I hope that some of you will be able to tell me what it is," she said. Then she drew the rivers, told the children about their sudden rise in wet seasons, their becoming mere marshes in the dry, and added to this a short explanation of the wet and the dry seasons of the tropics. She told them, also, the long distances on the coast between the rivers, and the barrenness of the interior. "Now, what should you think that Australia needed to make it fertile?" she asked. "You see that it has heat."

"Moisture, water," said Ned Hansom.

"Right, Ned. And now that we know something it wants, I will tell you something that it has which takes a great many people there. It has always been known as a grazing country. What is grazing?"

"Why, pasturing cattle," cried Mary Summers. "My uncle has a grazing-farm."

"But," said Miss West, "after a while some-

thing besides pasturage was discovered in Australia, — the same thing that I told you was found in California."

"Oh! gold," said Carrie Blunt.

"Yes, gold, and a good deal of it, was found in Australia; and so many people rushed there, that towns and cities grew up all at once."

"Is that the way they always do when there is gold around?" inquired Frank Blake. "Would everybody come here to Leslie if I should find some gold in the ground?"

"You would find so many people come to dig and make mines here, that you would not recognize your own town."

When the children had learned a little more of Australian life and a little of the natives, Miss West said that now she wanted to be taught, and that they were to tell her what they could remember about the things they had learned. Then she asked them questions about climate, which they answered readily. The water-sheds they remembered well; and they understood, also, the difference in temperature between the northern and the southern slope of hills. They explained river-basins glibly, and lakes were to them as ponds viewed through a magnifying-glass. They gave, also, some of

the causes of deserts, and of luxuriant vegetation, and, upon the whole, showed that they had gained a general knowledge of physical geography. They had even made a beginning upon political, but this did not extend much beyond the names of the continents. Yet, Miss West found that this little had laid a good foundation for those rudiments of history which she meant should accompany their study of political divisions. They had guessed out the situation of a few cities in Asia, and she had pointed out a few more to them. In Europe she had not yet attempted this, because the intricacy of mountains, and rivers, and inland seas had given them enough to do. But now she went back to the continent. She tried to make the children's study like an expedition which one goes upon because he wants to find out what more there is to be known. At first she asked for cities in this division.

Johnny Smart remarked that he knew there must be "lots" in England, but he didn't know where they were.

"What makes you think so?" she asked.

"Because you told us the people that came over here did as they do in England, and we have lots of cities here; and you told us they

had them out in Australia, too; and, of course, they would have them in their own country."

"You are right, Johnny; they do have a great many. Let us see if we can find any of them."

By showing the lines of travel, both by land and by the great water routes, Miss West helped out the children's guesses in Great Britain. Then, crossing from Dover to Calais, she showed them the largest cities of France, not often telling them directly the cause of their size, but giving them the facts from which they several times drew conclusions more accurate than she had expected.

"I'd like to see all those big places," cried little Frank Blake.

"It's nice to know about them first," returned Lily White; "for then you won't have to stare so when you go there, and make people think you never saw any thing."

"It is well to find out all you can first, Lily," said Miss West. "But don't be afraid of confessing that you don't know things, and of asking about them. It's the only way to learn; and it is often the people who know most, who are most ready to ask information."

"Is that because they want to know more?" asked Ned Summers.

"Don't you think I ask questions a good deal, teacher?" inquired Johnny Smart.

"I do, Johnny; and you know I like to have you. Now let me ask, not you only, but the class, one more question, What is geography?"

After thinking for a few moments, Frank Blake said, "I rather think, Miss West, it's a way of travelling in our minds."

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